

# Prevalence of Anxiety, Depression, and Stress among Nepalese Youth Population during COVID-19: A Cross-Sectional Study

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## Abstract

The novel coronavirus presents an unprecedented impact on physical as well as global public mental health. Younger people are vulnerable to negative psychological consequences during the Coronavirus disease (COVID-19) pandemic. This study aimed to identify the prevalence of anxiety, depression, and stress among the younger Nepalese population during the COVID-19 pandemic. Furthermore, it aimed to examine sociodemographic predictors of anxiety, depression, and stress. A quantitative cross-sectional survey was conducted through online platforms. Three hundred-one (301) participants of age group 16-40 years filled the validated Anxiety, Depression, and Stress Scale (ADSS) form between 5<sup>th</sup> October 2020 to 5<sup>th</sup> December 2020. The total prevalence of anxiety, depression, and stress in our study population was 46.5%, 50.6%, and 56.2%, respectively. Anxiety, depression, and stress all were predominant among the age group of 16-24 years, female population, those living in rural areas, and respondents with undergraduate education levels. Moreover, depression was found to be higher among tribal ethnicity, married women, and respondents with the perceived defect. Binary logistic regression analysis showed females (odds ratio (OR)=1.64; 95% CI: 0.99-2.17) and undergraduate education levels (OR=4.246; 95% CI: 1.44-12.53) were independently associated with anxiety; tribal ethnicity respondents (OR=2.22; 95% CI: 1.31-3.74) showed higher rate of depression and the age group 16-24 years (OR=0.34; 95% CI: 0.12-0.95) were found to have increased stress level.

The Nepalese youth population showed a high prevalence of anxiety, depression, and stress. These findings suggest that psychological support programs are needed urgently to promote the psychological well-being of Nepalese youth. Also, future longitudinal studies should be conducted with an adequate sample size to explore the long-term mental health impact of COVID-19 among the youth population.

**Keywords:** Anxiety, Depression, Stress, Nepalese Youth, COVID-19, Culture

The novel pandemic that began in December 2019 from Wuhan presents a detrimental effect on people's livelihood and health worldwide (Banna et al., 2020; Lancet, 2020; Zheng, 2020). The Covid-19 was declared as public health emergency of international importance by the World health organization (WHO) on 30th January and later as a pandemic on 11th March 2020 (Mayer & Lewis, 2020; Sharma, Ortiz, & Sharma, 2020).

Apart from the adverse effect on physical health, this pandemic has negatively affected the global public mental health (Salari et al., 2020; Vindegaard & Benros, 2020). Mental health impacts like anxiety, fear, guilty, nervousness, helplessness, emotional breakdown, stress, and depression have been observed at individuals, community, national and international levels during this pandemic (Zheng, 2020; Zhou, 2020). Recently before the pandemic, the prevalence of mental health issues is increasing and is the leading

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cause of disability (Organization, 2001; Vigo, Thornicroft, & Atun, 2016). This pandemic has further worsened mental health-related disability (Lunsky et al., 2021; Meagher, 2021; Vindegaard & Benros, 2020).

Studies have shown that anxiety, depression, and stress are the most common reactions to the novel pandemic (Krishnamoorthy, Nagarajan, Saya, & Menon, 2020; Rajkumar, 2020). During this pandemic, systematic reviews reported the prevalence of anxiety, depression, and stress ranged from 21.1% to 41.3%, 21.7% to 34.31% and, 21.5 to 37.4%, respectively (Hossain et al., 2021; Necho, Tsehay, Birkie, Biset, & Tadesse, 2021; Salari et al., 2020). Studies have identified the vulnerable populations being care providers, children and adolescents, younger and older adults, the elderly, health care workers, and people with underlying health conditions (Chaturvedi & Pasipanodya, 2021; Egede, Ruggiero, & Frueh, 2020; Rajkumar, 2020). But, a recent multi-country cross-sectional study conducted including six Middle-East countries involving only the young population revealed the prevalence of anxiety, depression, and stress is 40.5%, 57%, and 38.1%, respectively, at the time of COVID-19 (Al Omari et al., 2020). Moreover, the global cross-sectional survey reported that younger people were more susceptible to anxiety, depression, and stress during this time (Varma, Junge, Meaklim, & Jackson, 2020).

However, the threshold to define the youth or young age is non-identical and different countries have adopted their own standards. The United States and WHO determined the age of youth between 15-24 years (United Nations; WHO). Whereas, Nepal National youth policy 2015 has determined the age group of 16 - 40 years as the youth age (Nepal Government, 2015).

The pandemic-related stressors such as undetermined trends of the COVID-19, worried about contracting the disease, altered livelihood activities and lifestyle, temporary closed down schools and universities, and decreased income may have contributed to poor mental health among youths (Al Omari et al., 2020; Chaturvedi, Purohit, & Verma, 2021). In addition, some researchers reported gender, age, internet use time, living status, marital status, religion, ethnicity, and social support as socio-demographic variables related to mental health during

this period (Al Omari et al., 2020; Hou, Yu, & Lan, 2020; Lawal, Alhassan, Mogaji, Odoh, & Essien, 2020).

The risk factors for mental health illness in the Nepalese youth population include suddenly imposed lockdown, ineffective use of social media, lack of funding for mental health services, difficulty in coping with work/student life, and incomplete recovery from the 2015 devastating earthquake (Sharma, Reina Ortiz, & Sharma, 2020). Previous studies conducted in Nepal were limited to determine the prevalence of stress, anxiety, and depression only in a handful group of the population like healthcare workers, fever clinic attendants, students, or randomly among the general public (Dangal & Bajracharya; Devkota et al., 2020; Gautam et al., 2020; R. Sharma et al., 2020; Shrestha et al., 2020). Even though Nepalese youth people constitute a sizeable portion of the total population, play the lead role in the economic development of the country, and are highly vulnerable to mental health disorders (Sharma et al., 2020), the prevalence of mental health problems like stress, anxiety, and depression has not been explored yet in this population. Early identification of the most common mental health problems like anxiety, depression, and stress would help to remove an enormous barrier created by mental health-related stigmatization and discrimination in Nepalese society. Moreover, spotting mental health issues in this population would create an opportunity for early intervention and prevent more serious mental health disorders in the future. Therefore, this study aimed to identify anxiety, depression, and stress among the young Nepalese population during the COVID-19 pandemic. Furthermore, it aimed to examine socio-demographic predictors of anxiety, depression, and stress.

## **Method**

**Participants and Procedure:** This quantitative cross-sectional study was designed as a web-based survey to avoid the possibility of COVID-19 transmission by face-to-face interaction. The structured Google form included an informed consent form, demographic information, and the ADSS questionnaire. The Google form was uploaded to closed social media networks of youth-related organizations and forwarded to the personal email of prospective participants. The data collection took place from 5th October 2020 to

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5th December 2020. Youth respondents aged 16-40, as described by Nepal national youth policy 2015, were included in this study. Initially, 320 respondents voluntarily filled online forms during the predetermined time frame. Of these, 5.9% of participants who did not meet age criteria were excluded from the final data.

**Data Collection Tools:** The 48-item Anxiety, Depression, and Stress Scale (ADSS) was applied to collect the data (Singh, Pandey, Sandhya, & Amitabh, 2011). Participants had to respond to each item of scale as either yes or no. A score of zero was awarded for each 'No' response, and one was given for the 'Yes' response. The anxiety, depression, and stress subscales of ADSS consist of 19, 15, and 14 items, respectively, and a higher score indicates higher anxiety, depression, and stress level. Singh et al. (2011) have labeled the anxiety as normal (0-3), mild (3-5), moderate (5-9), and severe (above 9); the depression as normal (0-2), mild (2-4), moderate (4-9) and severe (above 9); and the stress as normal (0-4), mild (4-6), moderate (6-9) and severe (above 9) in the ADSS subscales. Nepali translated version of ADSS has good internal consistency (an alpha value of 0.86, 0.86, & 0.84 for anxiety, depression, and stress, respectively) and was used previously among the Nepalese population in the survey (Thagunna, Bhatta, & Adhikari, 2020).

The socio-demographic data collection in the online survey included information about age, gender, residence, education, marital status, family type, religion, ethnicity, and any perceived defect. The ethnicity was categorized into a tribal (ethnic group) and non-tribal (non-ethnic group), as classified by the government of Nepal. All 64 ethnic groups recommended in the National Census Survey 2011 (Mabuhang, 2014) indicated tribal groups while remaining are non-tribal. Perceived defect of participant (physical, social, & economic) was also obtained through a self-report statement.

### Data Analysis

The collected data from an online survey was entered and coded in Microsoft Excel. Some variable categories were merged during statistical analysis. Age was categorized as 16-24 and 25-40, while dichotomous family type (nuclear and extended) was used for analysis. All forms of perceived defects were merged, and education was categorized into two subclasses,

i.e., undergraduate and graduate or above. Data were expressed as computation of frequency, percentage, the mean, and standard deviation for anxiety, depression, and stress prevalence. The Chi-square test examined the differences in anxiety, depression, and stress for socio-demographic variables, while logistic regression assessed the prediction of these constructs of ADDS. Logistic regression was based on the presence or absence of symptoms of anxiety, depression, and stress. SPSS version 26 was used to perform statistical analysis.

### Results

The socio-demographic information about the respondents was presented in detail in table 1.

**Table 1: Socio-demographic characteristics**

Characteristics of the respondents (N=301)		
	n	%
Age (M= 23.31, SD=5.61, Range=16-40)		
16-24	210	69.8
25-40	91	30.2
Sex		
Male	127	42.2
Female	174	57.8
Residence		
Urban	158	52.5
Semi-Urban	81	26.9
Rural	62	20.6
Religion		
Hindu	264	87.7
Other	37	12.3
Family Type		
Nuclear	200	66.4
Extended	101	33.6
Ethnicity		
Tribal	114	37.9
Non-Tribal	187	62.1
Education		
Undergraduate	228	75.7
Graduate and above	73	24.3
Marital Status		
Unmarried	246	81.7
Married	55	18.3
Any defect		
Defect	68	22.6
No defect	233	77.4

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A total of 301 Nepalese youth (57.8% female and 42.2% male) participated in this study. The age of respondents was between 16 and 40 years, with a mean age of 23.31 years (SD=5.61). The majority of respondents were in the age group 16-24 (69.8%), Hindus (87.7%), from the urban area (52.5%), living in a nuclear family (66.4%), and belonged to non-tribal ethnicity (62.1%). In addition, the majority of participants was unmarried (81.7%), had undergraduate education degrees (75.7%), and had no self-perceived defect (77.4%).

**Table 2: Prevalence of Anxiety, Depression, and Stress**

		Frequency	Percentage	Mean	Standard Deviation
<b>Anxiety</b>	<b>Normal</b>	161	53.5	1.82	1.01
	Mild	58	19.3		
	Moderate	57	18.9		
	Severe	25	8.3		
<b>Depression</b>	<b>Normal</b>	149	49.5	1.93	1.07
	Mild	61	20.3		
	Moderate	55	18.3		
	Severe	36	12		
<b>Stress</b>	<b>Normal</b>	132	43.9	2.1	1.15
	Mild	64	21.3		
	Moderate	49	16.3		
	Severe	56	18.6		

The total prevalence of anxiety, depression, and stress in this study population was 46.5%, 50.6%, and 56.2%, respectively. More precisely, our result showed that more than half of the Nepalese youth population (53.5%) had no anxiety, 19.3% had mild, 18.9% had moderate, and only 8.3% had severe anxiety (M=1.82, SD=1.01). Furthermore, this study also demonstrated that 49.5% of respondents showed no depression, 20.3% mild, 18.3% moderate, and 12% severe depression levels (M=1.93, SD=1.07). Similarly, our study also revealed that 43.9 % of the Nepalese youth were stress-free, 21.3% had mild, 16.3% had moderate, and 18.6% had severe stress (M=2.1, SD=1.15), as shown in table 2.

Table 3: Respondents Characteristics on Anxiety, Depression and Stress

Factor	Anxiety		p-value	depression		p-value	Stress		
	Absent (%)	Present (%)		Absent (%)	Present (%)		Absent (%)	Present (%)	
Age	16-24	98(46.7)	112(53.3)	0.00*	87(41.4)	123(58.6)	0.00*	77(36.7)	133(63.3)
	25-40	63(69.2)	28(30.8)		62(68.1)	29(31.9)		55(60.4)	36(39.6)
Gender	Male	76(59.8)	51(40.21)	0.059	71(59.9)	56(44.1)	0.058	63(49.6)	64(50.4)
	Female	85(48.9)	89(51.1)		78(44.8)	96(55.21)		69(39.7)	105(60.3)
Residence	Urban	92(58.2)	66(41.8)	0.181	82(51.9)	76(48.1)	0.537	71(44.9)	87(55.1)
	Semi-Urban	41(50.6)	40(49.4)		40(49.4)	41(50.6)		37(45.7)	44(54.3)
	Rural	28(45.2)	34(54.8)		27(43.5)	35(56.5)		24(38.7)	38(61.3)
Religion	Hindus	137(51.9)	127(48.1)	0.138	128(48.5)	136(51.5)	0.346	114(43.2)	150(56.8)
	Other	24(64.9)	13(35.1)		21(56.8)	16(43.2)		18(48.6)	19(51.4)
Family Type	Nuclear	107(53.5)	93(46.5)	0.99	105(52.5)	95 (47.5)	0.143	89(44.5)	111(55.5)
	Extended	54(53.5)	47(46.5)		44(43.6)	57(56.4)		43(42.6)	58(57.4)
Ethnicity	Tribal	58(50.9)	56(49.1)	0.478	45(39.5)	69(60.5)	0.007*	46(40.4)	68(59.6)
	Non-Tribal	103(55.1)	84(44.9)		104(55.6)	83(44.4)		86(46)	101(54)
Education	Undergraduate	105(46.1)	123(53.9)	0.00*	98(43)	130(57)	0.00*	89(39)	139(61)
	Graduate and above	56(76.7)	17(23.3)		51(69.9)	22(30.1)		43(58.9)	30(41.1)
Marital status	Married	38(69.1)	17(30.9)	0.010*	37(67.3)	18(32.7)	0.004*	35(63.6)	20(36.4)
	Unmarried	123(50)	123(50)		112(45.5)	134(54.5)		97(39.4)	149(60.6)
Perceived defect	Defect	30(44.1)	38(55.9)	43.8	26(38.2)	42(61.8)	0.035*	24(35.3)	44(64.7)
	No defect	131(56.2)	102(43.8)		123(52.8)	110(47.2)		108(46.4)	25(53.6)

\*Statistically significant at p-value <.05

The anxiety, depression, and stress were significantly higher in the age group 16-24 compared to the age group 25-40 (53.3% vs 30.8%; 58.6% vs 31.9% and 63.3% vs 39.6% respectively) as shown in table 3. Compared to males, females had higher anxiety (51.1% vs 40.2%), higher depression (55.21% vs 44.1%), and higher stress levels (60.3% vs 50.4%). Respondents residing in the rural areas had proportionately higher anxiety (54.8%), depression (56.5), and stress (61.3%) than those living in the semi-urban and urban areas. Also, the prevalence of anxiety, depression, and stress was significantly higher among the respondents with undergraduate education level compared to graduate and higher education level (anxiety = 53.9% versus 23.3%, depression = 57% versus 30.1%, stress = 61%

versus 41.1%). The prevalence of depression was significantly higher among respondents with tribal than non-tribal ethnicity (60.5% versus 44.4%). Compared to married participants, unmarried people showed significantly higher anxiety (50% versus 30.9%) and depression (54.5% versus 32.7%). The prevalence of depression was significantly higher among the respondents with a perceived defect than without any defect (61.8% versus 47.2%).

#### Socio-demographic correlations of anxiety, depression, and stress

Binary logistic regression was computed to determine the prediction of anxiety, depression, and stress from socio-demographic factors/variables (Table 4)

Table 4: Results of binary logistic regression of Anxiety, Depression, and Stress

Variables	anxiety			depression			Stress					
	odds ratio	95% CI lower	95% CI upper	P-value	Odds ratio	95% CI lower	95% CI upper	P-value	Odds ratio	95% CI lower	95% CI upper	P-value
Age	1.392	0.498	3.888	0.528	0.409	0.144	1.16	0.093	0.337	0.12	0.948	0.039*
Sex	1.64	0.992	2.712	0.054*	1.575	0.949	2.614	0.79	1.48	0.901	2.428	0.121
Residence	0.694	0.361	1.321	0.264	1.056	0.544	2.048	0.872	1.056	0.548	2.033	0.871
Religion	1.428	0.657	3.102	0.369	1.464	0.679	3.16	0.331	1.269	0.606	2.658	0.528
Family Type	1.051	0.617	1.789	0.855	0.74	0.432	1.267	0.272	0.979	0.577	1.663	0.938
Ethnicity	1.295	0.777	2.158	0.321	2.217	1.313	3.745	0.003*	1.364	0.818	2.273	0.234
Education	4.246	1.439	12.528	0.009*	1.266	0.425	3.775	0.672	0.618	0.21	1.821	0.383
Marital status	0.831	0.371	1.864	0.653	0.758	0.343	1.671	0.492	0.57	0.269	1.21	0.143
Any defect	1.591	0.862	2.936	0.138	1.702	0.913	3.175	0.94	1.692	0.906	3.159	0.99

CI = Confidence Interval, Statistically significant at p-value <0.05

The results indicated gender and education were associated with anxiety, ethnicity was associated with depression, and only age was associated with stress. Further, females were 1.64 times more likely to experience anxiety than males (odds ratio (OR)=1.64; 95% CI: 0.99-2.17). Similarly, respondents with undergraduate education levels were four times more likely to experience anxiety than those with graduate and above education (OR=4.246; 95% CI: 1.44-12.53). Similarly, tribal ethnicity respondents were more than two times likely to be depressed than the non-tribal (OR=2.22; 95% CI: 1.31-3.74). Finally, the age group 16-24 were 0.34 times likely to be stressed compared to the age group 25-40 (OR=0.34; 95% CI: 0.12-0.95).

### Discussion

This study aimed to identify the prevalence of anxiety, depression, and stress among Nepalese youth and to examine socio-demographic features associated with these variables. Our results showed that nearly half of the respondents experienced some level of anxiety, depression, and stress. Anxiety, depression, and stress were higher among the age group 16-24 years, females, those living in rural areas, and undergraduate education level. Also, depression was reported higher among women, married, tribal ethnic respondents, and

respondents with the perceived defect. Further, we explored that gender and education were independently associated with anxiety, whereas ethnicity and age were associated with depression and stress, respectively.

There was a considerable degree of mental health impacts in our sample, with 46.5% anxiety, 50.6% depression, and 56.2% stress. A global survey targeting adults over 18 years of age from 63 different countries reported 59% clinically significant anxiety, 70% moderate level of depression, and 39% moderate level of stress (Varma et al., 2020). The difference in prevalence might be because of different data collection tools and difference in the age of sample. However, our study result is comparable to another online survey in Bangladesh involving the youth population aged between 24-39, which demonstrated 30.2% anxiety, 58.8% depression, and 57.5% stress (Banna et al., 2020). The reason might be because both Nepal and Bangladesh are developing countries in South Asia and have low resources to combat the consequences of the COVID-19 pandemic (De Guzman & Malik, 2020; Hossain et al., 2021). In this study, the prevalence of anxiety (57.3%), depression (58.6%), and stress (63.3%) were comparatively higher in the age group

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16-24 compared to a multi-country cross-sectional online survey in six Middle-East countries with an age group 15-24 which reported 40.5%, 57%, and 38.1% prevalence of anxiety, depression, and stress, respectively (Al Omari et al., 2020). This difference might be because of the difference in data collection time frame and tools.

Findings from this study revealed that gender and education were significant predictors of anxiety. This result is also consistent with previous studies (Al Omari et al., 2020; Verma & Mishra, 2020). The reasons might be the difference in socio-cultural factors like gender bias, societal role definition, and violence from intimate partners, and the internalizing nature of females compared to males in a patriarchal society like Nepal (Thagunna, Bhatta, & Adhikari, 2020). Furthermore, this study revealed education as a significant predictor of anxiety, reflecting consistency with earlier reports (Banna et al., 2020; Wang et al., 2020). Respondents with undergraduate education degrees experienced a significantly high level of anxiety than graduate level or higher education degree. Higher education attainment is related to a better sense of control and healthier habits for prevention compared to less educated people (Raghupathi & Raghupathi, 2020).

This study found ethnicity as predicting factor of depression. The tribal group (minority ethnic population in Nepal) experienced a higher grade of depression in this study. This result is in tune with COVID-19 related studies reporting negative mental health impacts on ethnic minorities (Proto & Quintana-Domeque, 2021; Smith, Bhui, & Cipriani, 2020). Age was a significant predictor of stress in this study, with the age group between 16-24 years is more vulnerable to stress. The result is even with studies in the literature that demonstrated younger people reported significantly higher scores on psychological distress compared to other age groups (Varma et al., 2020).

This is the first study to evaluate the psychological health of Nepalese youth during the COVID-19 pandemic. The findings from this study are alarming to healthcare providers and policy-makers to consider mental health impacts in this neglected population during this crucial period. Based on these findings, early psychological intervention would mitigate and prevent the long-term effect of mental health problems among this population.

### Limitations

However, this study is not free of limitations. First, this study was conducted through an online survey which may entail data of lower quality. Second, due to the small sample size, low literacy rate and limited access to computer, findings from this study cannot be generalized to the entire youth population of Nepal. Third, owing to the odd age group (16-40) used in this study, it became hard to compare findings with international data of the youth population. Fourth, because of the cross-sectional nature of the study, establishing the causal relationship between study variables was not possible. Fifth, some possible predictors such as internet use, respondent's occupation, and exposure to the COVID-19 disease were not included in the survey questionnaire, which might have further enhanced the result of this study. Sixth, this study did not use any theoretical model, which would have provided more insight for explaining findings from the study.

### Future research directions

In the future, it is recommended to replicate the study with larger sample size, including youth who do not have access to the computer. There is a need for more robust method using qualitative research design to insight in-depth psychological effect of pandemic in the youth population. Further, longitudinal studies are recommended to explore the long-term mental health impact of COVID-19 in this population.

### Conclusion

We conclude that the Nepalese youth population has a higher prevalence of anxiety, depression, and stress during the COVID-19 pandemic. Anxiety, depression, and stress were higher among the age group 16-24 years, females, those living in rural areas, and undergraduate education level. Gender and education were the predictive tools for anxiety, ethnicity determined depression, and age was associated with stress level. The findings suggest that psychological support programs like relevant psychosocial counselling, self-stress management, and group support are needed urgently to promote the psychological well-being of Nepalese youth. Also, there is a need for longitudinal studies with an adequate sample size for exploring the long-term mental health impact of COVID-19 among the youth population.

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